

AF Life Cycle Management Center

AFLCMC... Providing the Warfighter's Edge



Risk and Issue Management in Acquisition Programs

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Overview



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- **THIS IS A TEST!!!**
- **Former SecDef Rumsfeld Understood Risk**
- **Deconstructing Rumsfeld's quote**
- **The AF Life-Cycle Risk Management Process**
 - Risk statement breakdown
 - AF Standards for Probability and Consequence
 - Risk Management in Pre and post Award
 - Mining for Risks
- **5 Dragons of Risk Management**
- **Slaying the Dragons**
- **AFLCMC Risk & Issue Management in Acquisition Programs**
- **More training Opportunities on Risk**
- **Participate in AFIT research on Risk Management**
- **References and links (Download this brief !)**



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Deconstructing Rumsfeld



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- “...there are known knowns; there are things we know that we know”

Requirements; Issues

- There are known unknowns; that is to say, there are things that we now know we don't know.

RISKS

negative, future event that although uncertain to occur, would cause an execution failure in the program

- But there are also unknown unknowns – there are things we do not know we don't know

So What to do???

Quantitative analysis such as Monte Carlo

Add reasonable allowances to cost and schedule



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AF Life Cycle Risk Management

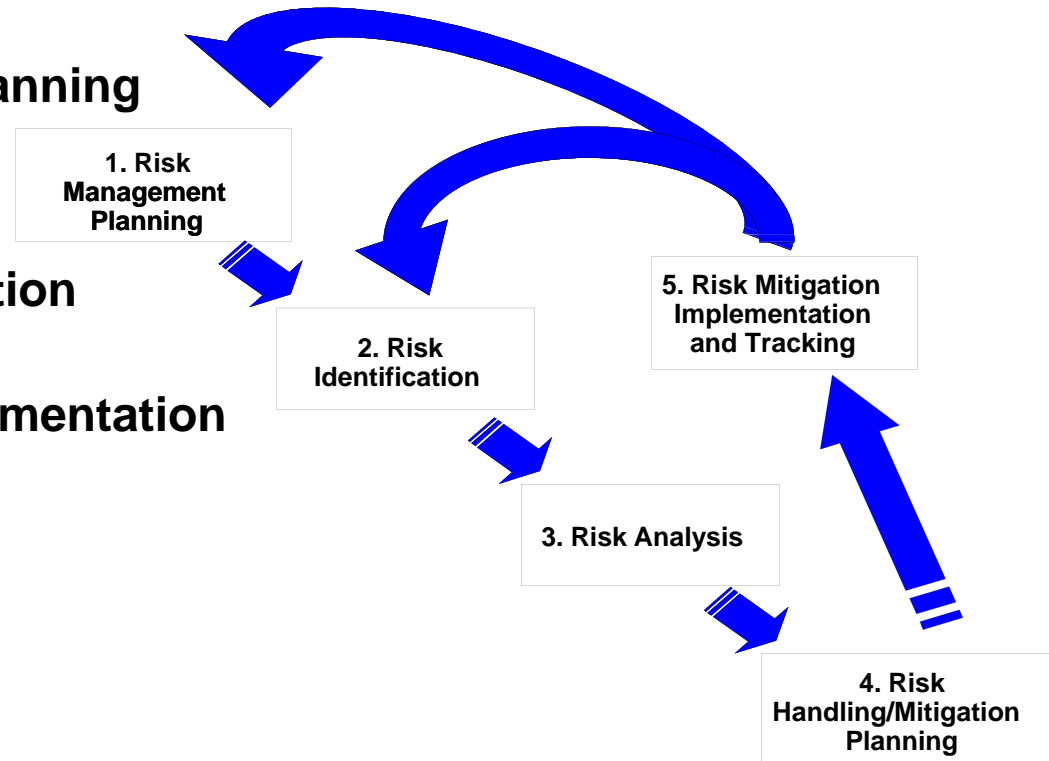


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Risk Management: the practice of dealing with future, potential, negative events -- Forward-looking, structured, continuous

■ Standardized Process Steps (at the Macro Level)

- 1 - Risk Management Planning
- 2 - Risk Identification
- 3 - Risk Analysis
- 4 - Risk Handling/Mitigation Planning
- 5 - Risk Mitigation Implementation and Risk Tracking



All steps occur throughout life cycle



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Risk Statement Breakdown



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- **Risk Statement Example:**

IF the rocket plume overloads the weapon bay door hinges during DT&E ,

THEN a hardware redesign is required to achieve full launch envelope

- **If (Condition)** *A concise description of the potential threat (risk)*
- **When (Trigger Point)** *A date or a major milestone at which a condition will begin to negatively impact the program*
- **Then (Consequence)** *A brief description of the additional activities that would be required if the risk occurs. (Becomes an issue, primary plan not effective, failed, and/or not available)*



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Probability & Consequence

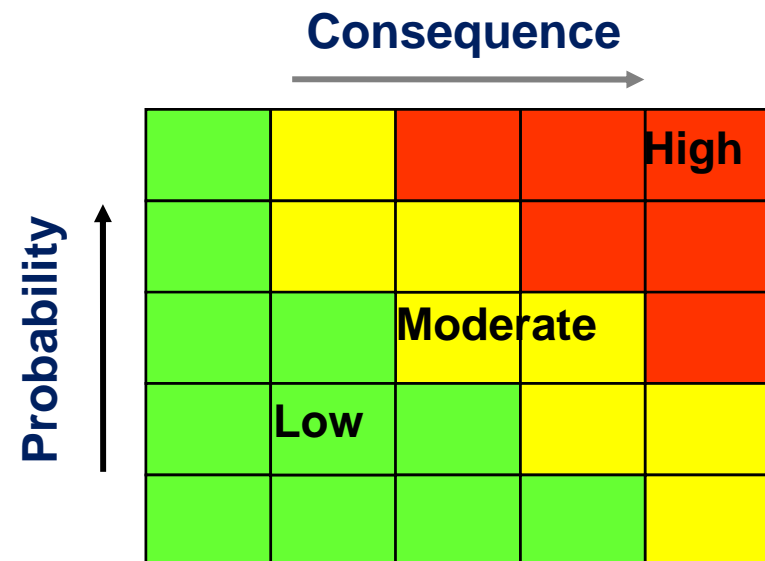


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- **Probability** of each risk occurring defined in levels, percentage bands and/or likelihood
 - Assess the “IF” phrase

Level	Probability of Occurrence	Likelihood
5	81 – 99 %	Near Certainty
4	61 – 80 %	Highly Likely
3	41 – 60 %	Likely
2	21 – 40 %	Low Likelihood
1	5 – 20 %	Not Likely

- **Consequence:** Effect on program if risk becomes a reality
 - Rate Impact of “then” phrase.
- Each risk assessed for impact in performance, cost, and/or schedule



AF Stds for Probability, Consequence Rating of Performance, Cost, & Schedule*

* See back-up slides or AFPAM 63-128 Chap 12 for AF Std ratings



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Pre-Award Risk Management



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- **Pre-Award risk ID and handling should:**
 - Shape you RFP
 - Influence the contract type
 - Help establish business practices
 - Influence source selection process
 - Lead you to “discriminators”
- **Goal of pre-award risk assessment is NOT:**
 - Creating a risk matrix for the ASP briefing
 - Identifying just risks to getting on contract

Pre-Award Risk ID and handling are elements of long-range planning



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Post-Award Risk Management



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- **Post-Award assessments ID emerging risks**
 - Systematically and continuously
 - Technical and program reviews
 - Relevant to upcoming program phases
- **Integrated Risk Assessment**
 - IDs emerging risks and re-assesses current risks
 - Collect sufficient data for statistical analyses
 - Analyze impacts of risks on Schedule and Costs
 - Monte Carlo analysis provides “confidence levels”
 - Potentially impacts program cost/schedule allocations



Mining for Risks

Methods to Reveal Risks

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- **Results of Program Assessments:**
 - Technology Readiness Assessment
 - Manufacturing Readiness Assessment
 - System Safety Hazard Assessment
 - Platform Information Technology Architecture Analysis
 - Intelligence Supportability Analysis and Intelligence Health Assessment
 - Operational Test Readiness Assessment



Mining for Risks

Methods to Reveal Risks

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- **Use of standard assessment tools:**
 - Logistics Health Assessment
 - Systems Engineering Assessment Model
 - Environment, Safety and Occupational Health (ESOH) Programmatic Risk Toolset
 - Risk ID, Integration and –ilities (RI3)*
 - Download from AFLCMC/EN System Engineering toolkit





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Five Dragons of Risk Management



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Systemic Overconfidence



Illusions of Communication



Artifacts of Framing



Random Inconsistencies



Placebo Effect of Rating



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Slaying the Dragons



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Systemic Overconfidence

- Recognize bias toward under-estimating risks
- Calibrate the estimators



Illusions of Communication

- Ensure AF Std Criteria used to create Risk Matrices
- Ensure audience knows when Risk Matrix is using AF Stds



Artifacts of Framing

- Framing a risk statement takes practice!



Random Inconsistencies

- Beware of the fatigue factor
- When Rating risk, constantly refer to the criteria



Placebo Effect of Rating

- Quantify Risks
- Use Monte Carlo Analysis of Schedule and cost



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AFLCMC Process Standards and Guides



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- <https://cs4.eis.afmc.af.mil/sites/1534/ProcDir/default.aspx>

Standard processes are approved by the Standards & Process (S&P) Board and their use is mandatory; process guides are approved by process owners (normally functional directors) and, while not mandatory, should be used to ensure greater standardization across the Center.

AFLCMC Home Page > AFLCMC Process Directory

AFLCMC Process Directory

Team AFLCMC Site | Process Metrics Data | Process Metrics Dashboard

View All Site Content

Documents

By Type

- Standard Processes (Mandatory)
- Process Guides

By Category

- Acquisition
- Product Support
- Business
- Technical
- Resource & Personnel Mgmt
- Support

By Function

- Contracting
- Engineering
- Financial Management
- Logistics
- Personnel
- Program Management

Process Directory

Links

- Upcoming Standard Processes
- Process Maturity Model (PMM)
- AFSAC Process Desk Guide (PDG)
- SAF/AQ Acquisition Process Model (APM)

What is the APD?

The APD is a collection of standard processes and process guides. Standard processes are approved by the Standards & Process (S&P) Board and their use is mandatory; process guides are approved by process owners (normally functional directors) and, while not mandatory, should be used to ensure greater standardization across the Center. As of 22 Nov 2013, there are 23 approved standard processes; this list will grow to approximately 40 standard processes by Apr 2014. Click on the "Upcoming Standard Processes" link to see the process standardization schedule. There are 78 process guides available today.

How can I request a change to a process?
Can I give feedback on a specific process?

Use this form to contact the APD Maintenance Team to: request a correction to a process; notify us of a policy/process change impacting a process; get help using the site.

How can I find what I need?

Find it by function:

What function does the work fall under? Click the name of the function in the left column. Then click the process within that function. Now click any listed APD to view.

Check the entire library:

Click the Process Directory link in the left column to display all available standard processes and process guides. Click any column header to filter the list.

Find it by keyword(s):

You can also search by keywords. Type the keywords in the search text box, then click the Go Search button.

This Site: AFLCMC Process Dir

Vision:
To Forge One Team delivering
integrated, innovative, dominant
airpower capabilities . . . on time, on
cost



**Risk and Issue
Management is Standard
Process reference # A06**



Risk and Issue Management Process Standard, A06



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ALL AFLCMC PROCESS STANDARDS FOLLOW A STD FORMAT

- **Description and purpose**
- **Entry/exit conditions and inputs/outputs**
- **Process Flowchart – high level depiction of the process that shows relationship between tasks; timeline**
- **Process Work Breakdown Structure (WBS) – provides detail for each flowchart activity box; timeline**
- **Measurement methodology/plan**
- **Roles & responsibilities of people involved**
- **Tools & equipment to support personnel in doing their jobs**
- **Training plan & available training**
- **Ground rules, assumptions, definitions**
- **Governing law, policy, regulation, standards**



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Ground Rules



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- **Does not cover non-Acquisition Risk Management (AFI 90-802) formerly known as Operational Risk Management**
- **Does not cover the identification and analysis of risk performed in Developmental Planning, Capability Determination or Analysis of Alternatives**
- **Honors previous AFLCMC and ASC Leadership decisions unless identified to S&P Board - Changes**
 - **PM review: was monthly now quarterly with bi-annual deep dives**
 - **AF Enterprise Risk Management System (AFERMS) waiver process IAW prior AFLCMC/CV direction to allow “grandfathering”**
 - **SAF/AQ actions may drive revisit in future (AFERMS for upward reports)**
 - **3 letter division appointed AFERMS POC to manage info access**
 - **Placed PM review briefing templates on SharePoint - recommended**
 - **Will update to AFERMS template when chart-worthy templates available**



AFLCMC RIM in Acquisition Programs Process Standard



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- **AFLCMC Risk and Issue Management (RIM) in Acquisition Programs**

- Common acquisition process for all PEOs in AFLCMC

- **Beyond AF requirements, AFLCMC RIM Process Std includes:**

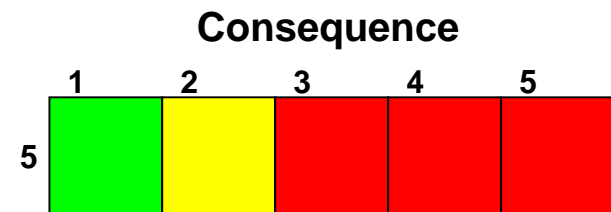
- **Issue Management**

- 100% probability of occurring or realized risk
 - Uses “top row” of Risk Matrix to “rate” issues
 - Consequence ratings same as Risk

- **Integrated Risk Assessment policy**

- **More descriptive roles and responsibilities**

- **placeholder for metric – coming April 14**



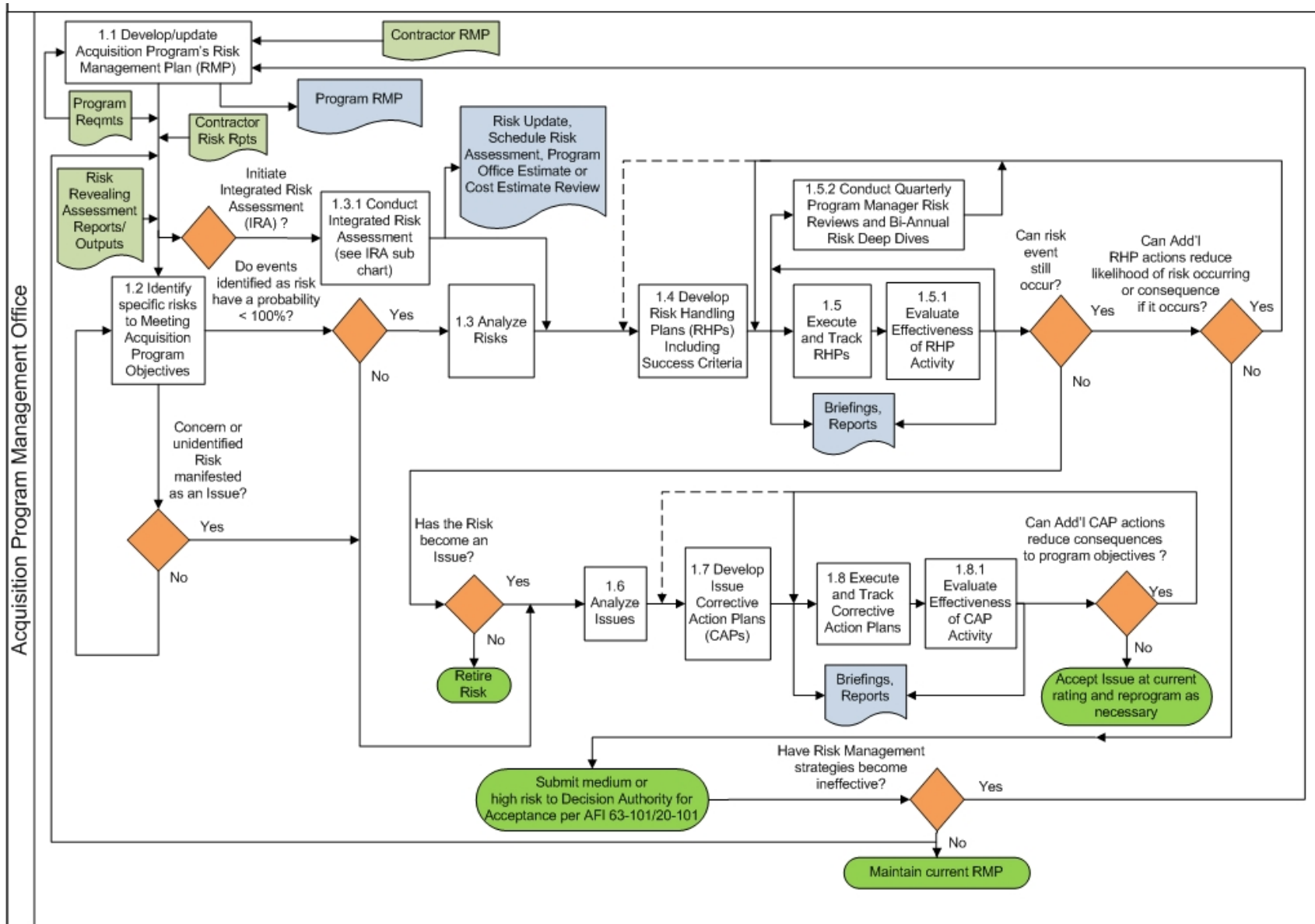


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Risk and Issue Management Process Flowchart



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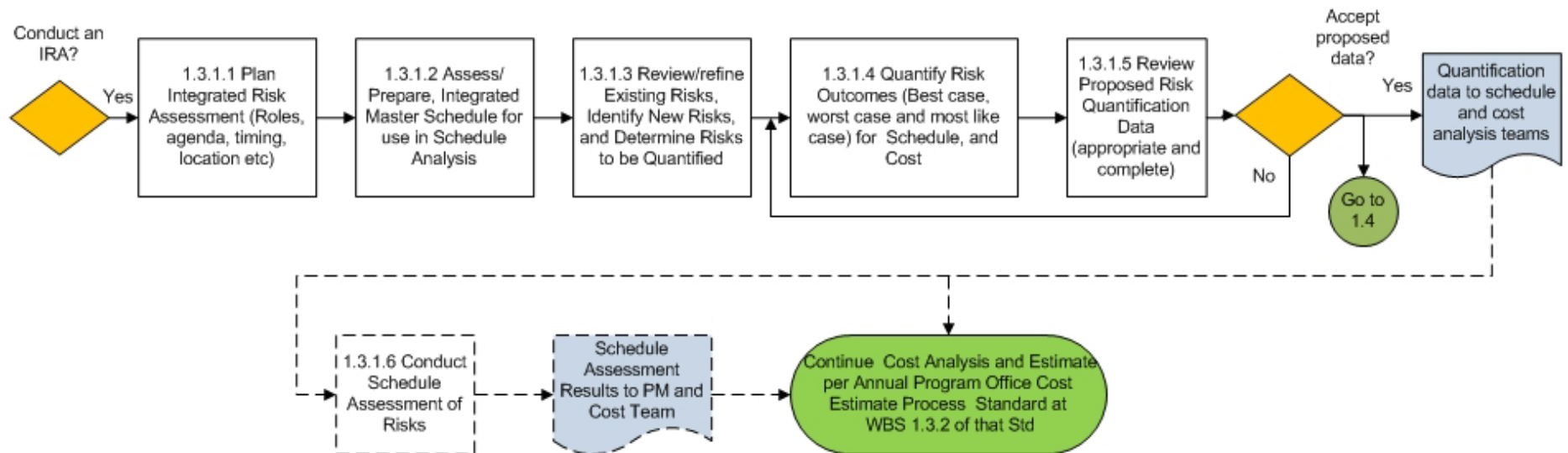


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Integrated Risk Assessment Flowchart



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What's on the Horizon



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- **AFPAM 63-128, *Guide to Acquisition and Sustainment Life Cycle Management*, still in comment resolution**
- **Implementation of AF Enterprise Risk Management System for consistent risk tracking**
- **AFLCMC Program Sufficiency Review (PSR) Process Standard, A04, under revision**
 - **Metric for Obj 3; launch high confidence programs**
 - **PSRs on two specified “Pre-Initial MS ACAT 1’s” in ‘14**
 - **AFLCMC Senior Council directed**
 - **PSRs of other ACAT1, II and III programs at PEO discretion**



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Other RM training Opportunities



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- <https://www.atrrs.army.mil/channels/acqnowcl/>
 - *AFIT Life Cycle Risk Management Course, Web-based*
 - *Quarterly Focus Week RIM training WPAFB and DCO*
 - *RIM DCO in conjunction with PM Boot Camp*
- *AFIT Life Cycle Risk Management Course, SYS 208*
 - *3 day in residence class*
- *Program/ directorate tailored training, as available*
- *JIT Risk Workshop Training for Pre-award Teams*
 - *Contact your local ACE*



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AFIT Sponsored RM Survey



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- **Goal:** “understand better what the current state of practice in industry and government services is regarding the management of risk in development programs and projects.”

Seeking 500 participants!

- **Review these Briefing Slides**
- **Take Survey at**
<http://surveys.afit.edu/index.cfm?id=22&stid=2201>

- **Submit request for one CL point to Supervisor via**
<https://www.atrrs.army.mil/channels/acqnowcl/>



DoD Risk Management Practices

ACQ NOW for Continuous Learning Events

- Continuous Learning CL
- Request CL Points
- View CL Transcript
- Update Profile
- CL Point Guidelines
- Add a CL Event
- Event Evaluations
- Apply for a CL Event
- Apply for a DAU CL Course
- Change an Event Application
- Cancel an Event Application
- Transfer CL Points
- Resend an email to your supervisor
- Help and Policy

ACQ Now
for Continuous
Learning

Privacy Notice

The following information is provided as required by the Privacy Act of 1974:

Purpose: The goal of the survey is to understand better what the current state of practice in industry and government services is regarding the management of risk in development programs and projects. Results from this survey will be used to identify areas for improvement in the areas of policy and education/training. The survey was developed by MIT's Lean Advancement Initiative (LAI) in collaboration with the Air Force Institute of Technology and Futron.

Participation: ALL ANSWERS ARE ANONYMOUS. No one other than the research team will see your completed questionnaire. Findings will be reported at the group level only.

Confidentiality: We would greatly appreciate your participation. ALL ANSWERS WILL BE KEPT STRICTLY CONFIDENTIAL.



Summary



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- **Make A Plan**
- **Follow the Plan**
- **Beware of the Dragons**
- **Know the criteria used to create the Risk Matrix**
 - Use AF Std Criteria for AF/DoD briefings
- **Review the AFLCMC Standard Process**
- **Practice being a risk practitioner!**

Risk comes from not knowing what you're doing.

Warren Buffett



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References



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- ***DODI 5000.02, Operation of the Defense Acquisition System, 25 Nov 13***
- ***AFI 63-101, Acquisition & Sustainment Life Cycle Management, 7 Mar 13***
- ***AFI 63-1201, Life Cycle Systems Engineering, 23 Jul 07***
- ***Risk Management Guide for DOD Acquisition, Aug 06***
- ***AFPAM 63-128, Guide to Acquisition and Sustainment Life Cycle Management, 5 OCT 09***
- ***AFLCMC Risk and Issue Management (RIM) Process Std, 22 Nov 13***
- ***AFMCPAM 63-101, Life Cycle Risk Management, 27 Apr 11***
- ***DI-MGMT-81808, Contractor Risk Management Plans***
- ***DI-MGMT-81809, Contractor Risk Management Status Reports***
- ***MIL-STD 882E , System Safety, 11 May 12***
- ***AFLCMC ACE Risk Management SharePoint Site:***
<https://cs.eis.afmc.af.mil/sites/ASCACE/pages/Risk%20Management.aspx>
- ***AFLCMC Integrated Risk Assessment SharePoint Site:***
<https://cs.eis.afmc.af.mil/sites/ASCACE/pages/Integrated%20Risk%20Assessment.aspx?PageView=Shared>
- ***The Failure of Risk Management, Hubbard, D.W., John Wiley & Sons, 2009***



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Questions/Comments?



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Standardized AF Consequence Rating (Performance)



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Per AFPAM 63-128 Chapter 12 as directed for use by AFI 63-101 Para 4.13.1

Level	Standard AF Consequence - Performance
1 Negligible	Minimal consequence to technical performance but no overall impact to the program success. A successful outcome is not dependent on this issue; the technical performance goals or technical design margins will still be met.
2 Minor	Minor reduction in technical performance or supportability, can be tolerated with little impact on program success. Technical performance will be below the goal or technical design margins will be reduced, but within acceptable limits.
3 Moderate	Moderate shortfall in technical performance or supportability with limited impact on program success. Technical performance will be below the goal, but approaching unacceptable limits; or, technical design margins are significantly reduced and jeopardize achieving the system performance threshold values.
4 Serious	Significant degradation in technical performance or major shortfall in supportability with a moderate impact on program success. Technical performance is unacceptably below the goal; or, no technical design margins available and system performance will be below threshold values.
5 Critical	Severe degradation in technical/supportability threshold performance; will jeopardize program success; or will cause one of the triggers listed below



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Standardized AF Consequence Rating (Performance, cont)



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Per AFPAM 63-128 Chapter 12 as directed for use by AFI 63-101 Para 4.13.1

Any root cause that, when evaluated by the cross-functional team, has a likelihood of generating one of the following consequences must be rated a Consequence Level 5 in Performance:

- **Will not meet Key Performance Parameter (KPP) Threshold**
- **Critical Technology Element (CTE) will not be a Technical Readiness Level (TRL) 4 at MS/KDP A**
- **CTE will not be at TRL 6 at MS/KDP B**
- **CTE will not be at TRL 7 at MS/KDP C**
- **CTE will not be at TRL 8 at the Full-rate Production Decision point**
- **Manufacturing Readiness Level (MRL)* will not be a 8 by MS C**
- **MRL* will not be at 9 by Full-rate Production point**
- **System availability threshold will not be met**

*** MRLs will be calculated in accordance with the *DoD Manufacturing Readiness Assessment Deskbook*.**



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Standardized AF Consequence Rating (Schedule)



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Per AFPAM 63-128 Chapter 12 as directed for use by AFI 63-101 Para 4.13.1

Level	Standard AF Consequence - Schedule
1 Negligible	Negligible schedule slip
2 Minor	Schedule slip, but able to meet key dates (e.g. PDR, CDR, FRP, FOC) and has no significant impact to slack on critical path.
3 Moderate	Schedule slip that impacts ability to meet key dates (e.g. PDR, CDR, FRP, FOC) and/or significantly decreases slack on critical path
4 Serious	Will require change to program or project critical path.
5 Critical	Cannot meet key program or project milestones.



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Standardized AF Consequence Rating (Cost)



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AFPAM 63-128 Chapter 12 as directed for use by AFI 63-101 Para 4.13.1

Level	Standard AF Consequence - Cost (A-B refers to MS/KDP)
1 Negligible	For A-B Programs: 5% or less increase from MS A approved cost estimate For Post-B & Other Programs: limited to $\leq 1\%$ increase in Program Acquisition Unit Cost (PAUC) or Average Procurement Unit Cost (APUC) for current baseline estimate, or last approved program cost estimate
2 Minor	For A-B Programs: $>5\%$ to 10% increase from MS A approved estimate For Post-B & Other Programs: $\leq 1\%$ increase in PAUC/APUC from current baseline estimate, or last approved program cost estimate, with potential for further cost increase
3 Moderate	For A-B Programs: $>10\%$ to 15% increase from MS A approved estimate For Post-B & Other Programs: $>1\%$ but $<5\%$ increase in PAUC/APUC from current baseline estimate, or last approved program cost estimate
4 Serious	For A-B Programs: $>15\%$ to 20% increase from MS A approved estimate For Post-B & Other Programs: 5% but $<10\%$ increase in PAUC/APUC from current baseline estimate, or last approved program cost estimate
5 Critical	For A-B Programs: $>20\%$ increase from MS A approved cost estimate For Post-B & Other Programs: $\geq 10\%$ increase in PAUC/APUC from current baseline estimate (danger zone for significant cost growth and Nunn-McCurdy breach), or last approved program cost estimate